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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,750	03/22/2004	Todd Peterson	11032-044-999	2424
20583	7590	08/24/2004	EXAMINER	
JONES DAY 222 EAST 41ST ST NEW YORK, NY 10017			ALLEN, DENISE S	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/806,750	PETERSON ET AL.	
	Examiner	Art Unit	
	Denise S Allen	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 32-35 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 and 32-35 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION***Information Disclosure Statement***

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." The following references are listed in the specification: PCT/US97/06584, PCT/US98/23160, US 6,214,560, US 08/953,713, Microarray Biochip Technology, WO 99/20789, *Nature Physical Science, Kolloid-Z. u. Z. Polymere, Diss. Faraday Soc.*, "Some Experiments on Colloidal Gold", WO 97/40181, Chemical & Engineering News, and IEEE Transactions on Biomedical Engineering. Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Specification

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

Claims 1 – 19 are objected to because of the following informalities:

The limitation "the distribution or location" (claim 1 line 2) lacks antecedent basis because it has not been previously recited. Suggested correction: replace the limitation with "a distribution or location".

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The limitation “the distribution of said probes” (claim 4 line 2) lacks antecedent basis because it has not been previously recited. Suggested correction: replace the limitation with “a distribution of said probes”.

Claim 11 ends with a semi-colon, “;”. Suggested correction: replace the semi-colon with a period, “.”.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 – 4, 7 – 9, 17, 18, 32, and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Webb et al (US 4,385,830).

Regarding claim 1, Webb et al teaches a means for determination of a dynamic property (the property of vorticity shown in Figure 7) of a fluid volume (Figure 3 reference 14), comprising, a means for determining the distribution or location or both (Figure 4) of at least one light scattering particle (Figure 1 reference 12) in said fluid volume by a means for detecting (references 52 and 54) light scattered from said at least one particle (references 28 and 28’).

Regarding claim 2, Webb et al teaches the dynamic property is flow rate (by definition vorticity is a measure of the rotational motion in a fluid flow).

Regarding claim 3, Webb et al teaches the dynamic property is particle distribution in said fluid volume (Figure 8 and column 14 lines 3 – 7).

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Regarding claim 4, Webb et al teaches probes (reference 10) are present in said fluid volume and said particle distribution is indicative of the distribution of said probes in said fluid volume.

Regarding claim 7, Webb et al teaches the dynamic property is a flow pattern (vorticity) in a device or portion of a device (reference 16), said device being an article of manufacture including one or more channels or reservoirs for fluid (column 5 line 46).

Regarding claim 8, Webb et al teaches the dynamic property is fluid mixing (vorticity inherently results in fluid mixing) being evaluated in one or more portions of said device or through the entire device (the portion of reference 16 located between references 24 and 26), said portions being selected from the group consisting of a mixing chamber, a port, a flow channel (column 5 line 46), a pump, a valve, and a flow channel intersection.

Regarding claim 9, Webb et al teaches the fluid volume is in a small volume device (column 12 lines 60 – 64).

Regarding claim 17, Webb et al teaches the small volume device is a microchannel device, comprising at least one microchannel of sufficient size to allow fluid flow (column 14 lines 3 – 25).

Regarding claim 18, Webb et al teaches the at least one particle comprises a plurality of distinguishable particles (column 4 lines 58 – 68).

Regarding claim 32, Webb et al teaches a means for analyzing fluid flow (vorticity) in at least one portion of a small volume device (reference 16), comprising a means for illuminating (reference 18) a suspension of light scattering particles (reference 10) in at least one portion of said device; and a means for detecting (references 52 and 54) the presence of said light scattering

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particles as an indication of said fluid flow (by means of the scattered light references 28 and 28').

Regarding claim 33, Webb et al teaches a plurality of different light scattering particles (column 4 lines 58 – 68) are inserted in said device, and said plurality of different particles are detected as an indication of said fluid flow.

Claims 1, 3, 9, 10, 13, and 17 – 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Dittrich et al (US 3,738,759).

Regarding claim 1, Dittrich et al teaches a means for determination of a dynamic property of a fluid volume (the property of number of particles per unit volume, column 4 lines 14 and 15), comprising, a means for determining the distribution or location or both (Figure 1) of at least one light scattering particle (column 3 lines 42 – 44) in said fluid volume by a means for detecting (reference 10) light scattered from said at least one particle (references 28 and 28').

Regarding claim 3, Dittrich et al teaches the dynamic property is particle distribution in said fluid volume (the property of number of particles per unit volume, column 4 lines 14 and 15).

Regarding claim 9, Dittrich et al teaches the fluid volume is in a small volume device (column 4 lines 16 – 19).

Regarding claim 10, Dittrich et al teaches the small volume device is selected from the group consisting of a micro volume device, a nano volume device, and a pico volume device (column 4 lines 16 – 19).

Regarding claim 13, Dittrich et al teaches the small volume device is selected from the group consisting of a pump; a port, a channel junction (Figures 4 and 5), and a valve.

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Regarding claim 17, Dittrich et al teaches the small volume device is a microchannel device, comprising at least one microchannel (reference 28 is a capillary tube) of sufficient size to allow fluid flow.

Regarding claim 18, Dittrich et al teaches the at least one particle comprises a plurality of distinguishable particles (column 3 lines 42 – 44).

Regarding claim 19, Dittrich et al teaches the plurality of distinguishable particles is used to analyze mixing of fluids from two different sources (references 16 and 24).

Claims 1, 4 – 6, 9, and 14 – 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Tateiwa (US 5,444,529).

Regarding claim 1, Tateiwa teaches a means for determination of a dynamic property (the property of distribution of particles, column 1 lines 46 – 47) of a fluid volume (column 1 lines 44 – 45), comprising, a means for determining the distribution or location or both (Figure 2) of at least one light scattering particle (reference 2) in said fluid volume (reference 3) by a means for detecting (reference 7) light scattered from said at least one particle (reference 6).

Regarding claim 4, Tateiwa teaches probes are present in said fluid volume and said particle distribution is indicative of the distribution of said probes in said fluid volume (column 2 lines 11 – 27).

Regarding claim 5, Tateiwa teaches the distribution of probes is on a solid phase surface (reference 1).

Regarding claim 6, Tateiwa teaches the dynamic property is uniformity of drying on a solid surface (column 2 lines 11 – 27).

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Regarding claim 9, Tateiwa teaches the fluid volume is in a small volume device (column 1 lines 9 – 12).

Regarding claims 14 – 16, Tateiwa teaches a plurality of features and has deposited on each feature a volume of 10 pL to 2 microliters (reference 3).

Claims 1 – 3 and 32 – 35 are rejected under 35 U.S.C. 102(b) as being anticipated by McDowell et al (US 5,905,568).

Regarding claim 1, McDowell et al teaches a means for determination of a dynamic property (the property of velocity, column 2 lines 39 – 41) of a fluid volume (Figure 1A reference 12), comprising, a means for determining the distribution or location or both (references 18, 20, and 22) of at least one light scattering particle (reference 14) in said fluid volume by a means for detecting (references 18 and 20) light scattered from said at least one particle.

Regarding claim 2, McDowell et al teaches the dynamic property is flow rate (velocity).

Regarding claim 3, McDowell et al teaches the dynamic property is particle distribution in said fluid volume (Figures 1B and 1C).

Regarding claim 32, McDowell et al teaches a means for analyzing fluid flow (velocity) in at least one portion of a small volume device (reference 16), comprising a means for illuminating (reference 26) a suspension of light scattering particles (reference 14) in at least one portion of said device; and a means for detecting (references 18 and 20) the presence of said light scattering particles as an indication of said fluid flow.

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Regarding claim 33, McDowell et al teaches a plurality of different light scattering particles (reference 14) are inserted in said device, and said plurality of different particles are detected as an indication of said fluid flow.

Regarding claim 34, McDowell et al teaches the at least one portion is a plurality of portions of said device (all of reference 16).

Regarding claim 35, McDowell et al teaches the flow is detected using extended exposure, whereby said light scattering particles provide flow tracers (Figure 4).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tateiwa.

Tateiwa teaches the means for determination of a dynamic property as described above. Tateiwa does not teach the small volume device is selected from the group consisting of an array chip, an array plate, an array slide, a membrane, or a porous matrix.

It would have been obvious to one of ordinary skill in the art at the time of the invention to replace the semiconductor device of Tateiwa with an array chip, an array plate, an array slide, a membrane, or a porous matrix in order to inspect these devices for unwanted particles.

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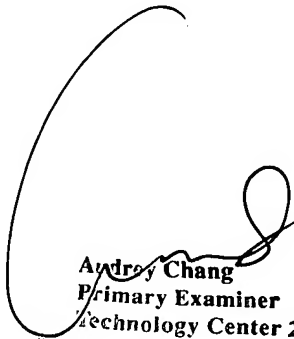
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Denise S Allen whose telephone number is (571) 272-2305. The examiner can normally be reached on Monday - Friday, 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Denise S Allen
Examiner
Art Unit 2872


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